DAVID CLARK COMPANY INCORPORATED

BW-3

March 3, 1967

Mr. C. L. Johnson
Vice President
Advanced Development Projects

Dear Mr. Johnson:

This is to inform you on the style and types of personal equipment
25X1A [redacted] is presently using as a test pilot at areas other than BW-3.

25X1A [redacted] has in his possession, two helmets that are listed as GN-ACS-1621 Phase II helmets. This particular helmet was ordered by Headquarters as an evaluation item to eliminate reflections from the gold plated heated visors, presently used on all standard GN-ACS-880 full pressure helmets. To my knowledge, the GN-ACS-1621 Phase II helmet is still an evaluation item, as only two Subjects,
25X1A [redacted] and Subject 1051 (based at BW-3) are the only pilots to ever replace their standard GN-ACS-880 full pressure helmets with the Phase II GN-ACS-1621 mask helmet. Many of the Subjects based at BW-3 have tried the Phase II helmet, but prefer to use the standard face barrier GN-ACS-880 style helmet. The GN-ACS-1621 helmet does have some advantages over the standard helmet because the visor remains in the up position, eliminating reflections from the gold plated visor. Also, [redacted] and Subject 1051, often 25X1A remarked about the added cooling from the suit vent air passing up through the suit neck ring past the Subject's face.

The GN-ACS-1621 helmets at BW-3 are fitted with a counter balance spring assembly (GN-A2840) which will add to the closing of the visor under "G" forces, or if the pilot had to leave the aircraft in an inverted possition. All ACS-1621 helmets have aneroid operated visors and are scheduled to close between 29,000 and 31,000 feet which is at least 3,000 feet before the aneroid in the suit controller functions.

The ACS-1621 Phase II helmet can be used with either an S970 (rear entry) suit assembly which [redacted] has two, or an S901 "U" 25X1A entry suit assembly. Subject 1051 uses an S970 and an S901 suit assembly.

25X1A One of [redacted] Phase II helmets (serial number 265) is not standard with the other existing five helmets of this type. This particular helmet has the original plumbing which connects the two internal oxygen hoses into the helmet manifold. This type of connector

was proven unsafe for flight when one of the oxygen hoses separated from the manifold while Subject was being tested with 70 PSI of oxygen. We were then directed by Headquarters to change this type of connection to the original, and still standard, type of hose connection used on all ACS-880, ACS-2885 and ACS-2219 style helmets at this area.

Two other non-standard items on [redacted] helmet, serial number 265, are the two helmet pressure taps ACS-C1311, used to monitor suit and face or mask cavity differential pressure as the Subject is being tested before a flight. This item was proven to be unsafe for flight, after Subject 1051 ejected at low altitude from Article 126 with an ACS-1621 Phase II helmet, serial number 256. The investigating team found that due to the high profile of the ACS-C1311 pressure tap, it was struck by some object and torn from the helmet. At a later date, the David Clark personnel at BW-3 static tested the entire assembly that Subject 1051 ejected with and found that the suit would not remain pressurized with a pressure tap missing. We were led to believe that if the subject had ejected at a high altitude, he would have been in serious trouble. We were then directed, by Headquarters, to remove all ACS-C1311 pressure taps from all full pressure helmets and replace them with flush mounted GN-P-3399 type pressure taps. 25X1A

When the ACS-1621 Phase II helmet is used with either an S970 or an S901 suit assembly, a neck dam GN-A2797 must be installed in the neck ring area of the suit. The neck dam normally remains loose around the subject's neck to allow adequate vent and comfort for the subject. The neck dam can be drawn tight by means of a draw string that attaches to the Subject's mask with a snap. In event the Subject had to eject over water, he should draw his neck dam tight before contact with the water as part of his over water ejection procedures. This would prevent water entering the suit through the helmet.

To pre-flight or test this helmet for any reason, you will follow the same procedures as testing an 880 type helmet. There is one change in the test plate used in the mask. The nomenclature and number for this item is GN-IJ-D1125 plate, testing, mask.

NOTE: When testing the GN-ACS-1621 Phase II helmet either in pre-flight, subject test or post-flight, always test the helmet with the visor in the closed position so the complete oxygen system is functioning while the test is being performed.

One other test that should be made at least every thirty days is the function of the aneroid operated visor in a chanber at altitude. The aneroid should allow the visor to close between 29,000 and 31,000 feet. After the test, the aneroid can easily be re-armed manually.

A number of spare parts used only on Phase II helmets, should be kept in stock and installed only by experienced personnel.

Inclosed are thirty day periodic and annual iran forms that we presently use, which covers the testing and inspection of all David Clark pilot's protective assemblies, used at BW-3.

Very truly yours,

DAVID CLARK COMPANY INCORPORATED

[redacted]
BW-3 Representative

25X1A